

King County GIS **Reorganizes for Success**

'Putting GIS to Work in King County'

Annual WA URISA Conference

February 8, 2002

Greg Babinski, KCGIS Center Marketing & Finance Manager

Arnold Waters, KCGIS Center DBA & Operations Manager

Greg Stought, KCGIS Center - DNRP GIS Unit Manager

Dennis Higgins, KCGIS Center Client Services Manager



What is GIS?

What is a GIS?

- ❑ **Geographic information system.**
- ❑ **In the strictest sense, a GIS is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information, i.e. data identified according to their locations.**

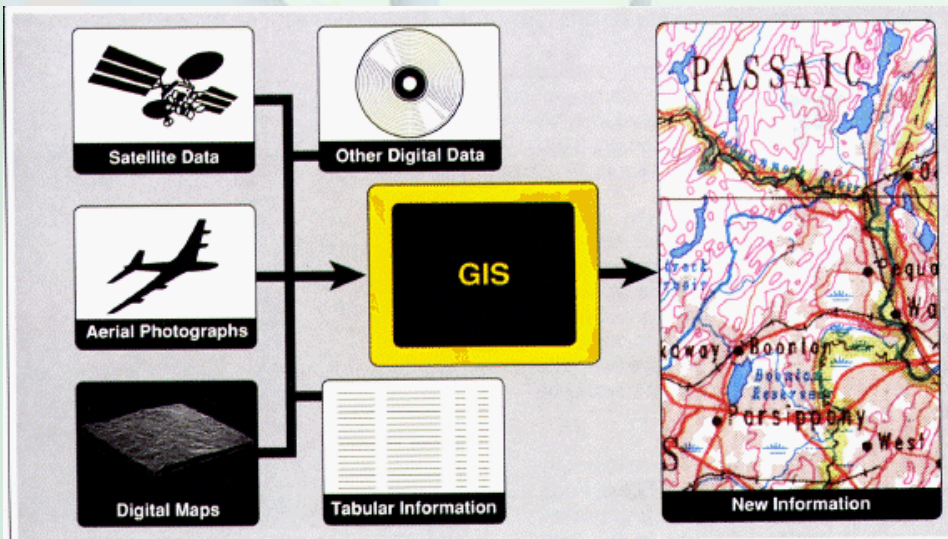


Figure 9. Data integration is the linking of information in different forms through a GIS.

Practitioners also regard the total GIS as including operating personnel and the data that go into the system.

(Source: U.S. Geological Survey)



How is GIS Used for King County Business?



park & ride



How is GIS used for County Business?

- ☐ Mapping
- ☐ Public information delivery
- ☐ Growth management & planning
- ☐ Property assessment
- ☐ Land development permitting
- ☐ Site selection
- ☐ Simulating environmental conditions
- ☐ Emergency response planning
- ☐ Crime analysis
- ☐ Transportation planning
- ☐ Bus & van routing
- ☐ Road maintenance management
- ☐ Public health service delivery
- ☐ E911 operations
- ☐ Airport sound abatement
- ☐ Boundary management (legislative districts, voter precincts, tax unit boundaries, etc.)

King County GIS (KCGIS)

The King County Geographic Information System (KCGIS) is a coordinated regional geographic information resource, organized to meet the business needs of King County, local agencies, and the general public.

KCGIS is comprised of both the King County GIS Center (responsible for core GIS resources and enterprise services for the entire County) and business specific activity in various GIS units distributed across other County departments.



King County GIS Reorganization

"I highly value the work that all of you do for King County....An efficiently run GIS system is a high priority for me..."



"I want to improve our GIS, provide it the resources to grow, provide more consistent services and see the County become a regional GIS service provider..."

"I feel the best way to accomplish this is by consolidating our assets and centralizing our data and management functions with the Department of Natural Resources in the lead...this is not intended as a budget cutting exercise, although we may logically find efficiencies..."

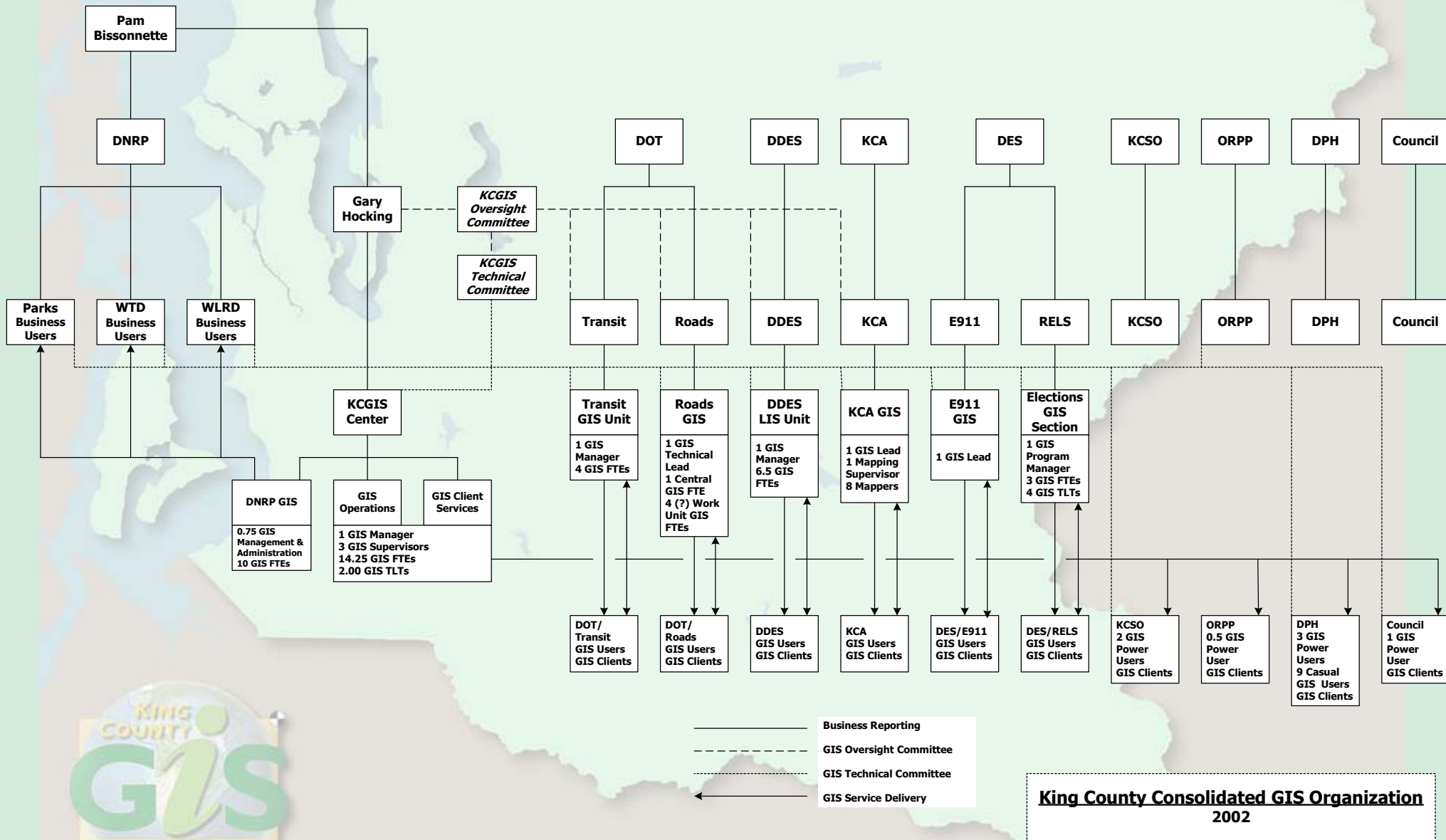
"My vision is to pull all [King County] data and geographic information together with the ability to develop products from it, and have a single point of accountability for assuring these products are accurate, consistent, accessible, affordable, and comprehensive. Once accomplished, the value of this asset will be virtually incalculable, and highly usable by the rest of the region..."

"My interest is to protect our GIS, better our GIS, and grow our GIS. By consolidating the GIS function, this vision can be achieved."



- Ron Sims, King County Executive, March 23, 2001

KCGIS Reorganization



DNRP Director

- ❑ **Manage reorganization of Countywide GIS program**
- ❑ **Transfer central GIS function from ITS to DNRP**
- ❑ **Single point of accountability for overall King County GIS program**
- ❑ **Single point of accountability for KCGIS data and applications**
- ❑ **Decide issues that cannot be resolved by GIS Oversight Committee**
- ❑ **Negotiate for Countywide funding to support KCGIS**
- ❑ **Report on KCGIS progress to the King County Executive**



KCGIS Oversight Committee

- ❑ **Members from King County DNRP, DOT, DDES, & Assessor**
- ❑ **Chaired by DNRP Technology Manager**
- ❑ **Review KCGIS Center and Department GIS budgets & workplans**
- ❑ **Review and approve KCGIS operations & maintenance plan**
- ❑ **Review and approve annual KCGIS Center budget and funding model**
- ❑ **Review and resolve any issues referred by the KCGIS Technology Committee**



KCGIS Technical Committee

- ❑ **Members from 14 County agencies - Chair & vice-chair elected annually**
- ❑ **Report quarterly to KCGIS Oversight Committee**
- ❑ **Develop and recommend KCGIS policy, standards, templates**
- ❑ **Develop KCGIS operations & maintenance plan**
- ❑ **Develop a coordinated annual KCGIS business plan**
- ❑ **Discuss GIS technical issues**
- ❑ **Educate departments about the value of GIS for business functions**



KC Department GIS Units

- ❑ **Maintain unique GIS data, applications, and services needed to support agency specific business**
- ❑ **Maintain core KCGIS data needed to meet enterprise GIS business needs**
- ❑ **Work with KCGIS Center to integrate department data into KCGIS Data Warehouse**
- ❑ **Work with KCGIS Center and KCGIS Technical Committee to develop Countywide GIS operations & maintenance plan and annual KCGIS workplan**
- ❑ **Comply with Countywide GIS standards and procedures**



KCGIS Center

- ❑ **Provide the enterprise GIS services KC department customers require**
- ❑ **Develop and manage the coordinated, integrated Countywide GIS environment needed for King County to be a regional GIS service provider**
- ❑ **Manage KCGIS architectural development**
- ❑ **Manage KCGIS Data Warehouse infrastructure**
- ❑ **Provide enterprise support services**
- ❑ **Provide end-user client services**
- ❑ **Manage DNRP GIS services**



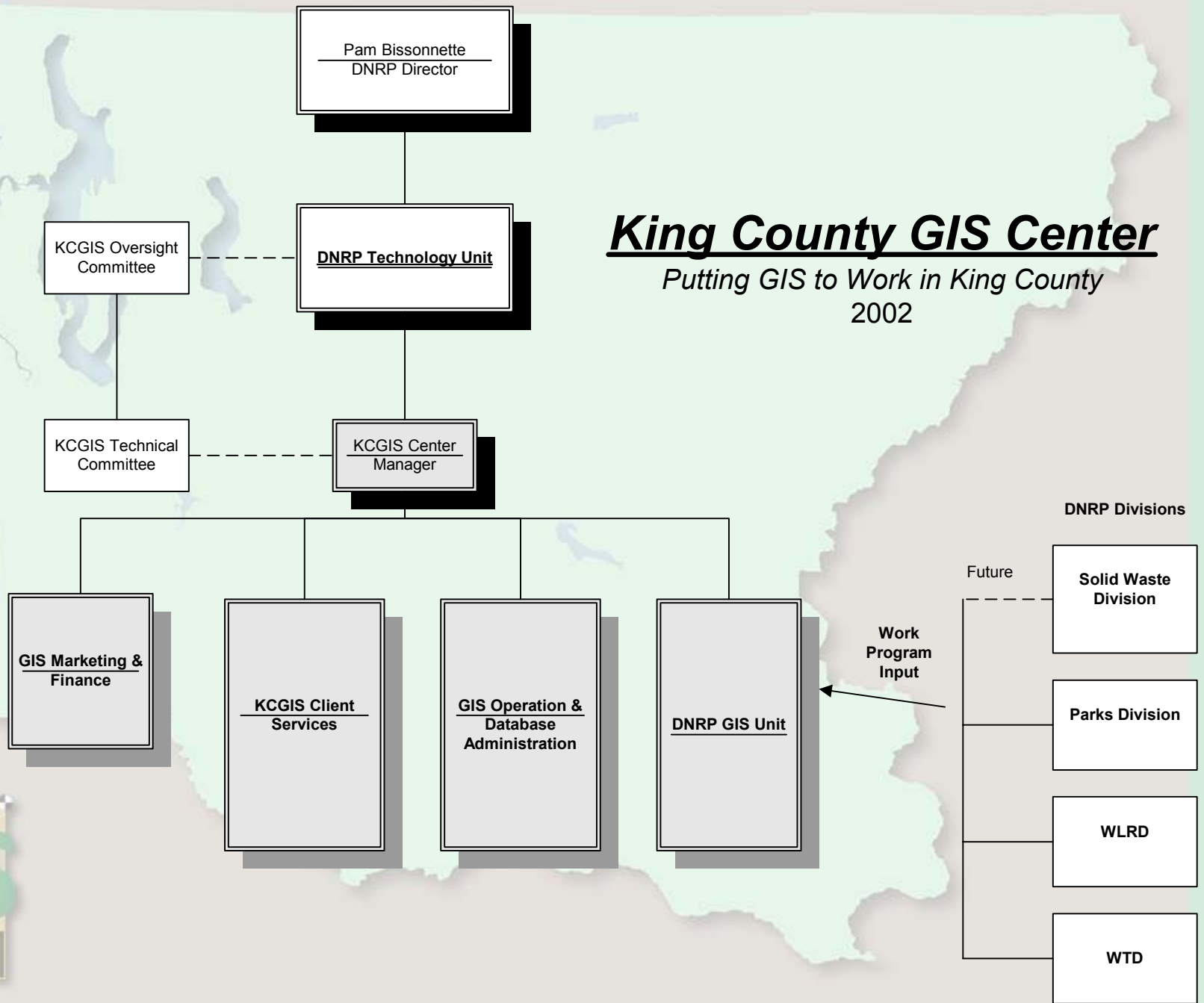
King County GIS Center Mission & Responsibilities

The King County GIS Center mission is to deliver efficient, quality GIS solutions to meet the unique business needs of the public, King County agency staff, and the communities we serve.

The King County GIS Center is also responsible for management of all GIS staff and activity for four DNRP divisions (WLR, WTD, SWM, Parks).



KCGIS Center Organization



KCGIS Center - Programs & Services

KCGIS Data Warehouse & Enterprise GIS Services:

- Manage the KCGIS Data Warehouse (see diagram)
- Maintain 'back-end' GIS data maintenance applications
- Provide 'front-end' GIS data access applications for end-users (see iMap example)
- Provide limited GIS end-user education & 'help-desk' support
- Provide regional GIS coordination & marketing

KCGIS Client Services:

- Business needs assessments
- GIS consulting
- Client GIS customization
- Custom GIS programming
- Custom map production & Publication cartography
- GIS data analysis
- GIS staffing
- GIS training
- GIS data sales

DNRP GIS Services:

Water & Land Resources:

- Watershed planning
- Habitat protection
- Resource stewardship
- ESA response

Wastewater Treatment:

- Conveyance system improvements
- Inflow & infiltration
- Brightwater siting & conveyance

Parks & Recreation:

- Facility management
- Parks & trails user maps



KCGIS Data Warehouse Operations

Arnold Waters, KCGIS Center DBA & Operations Manager



KCGIS Center Operational Overview

- ❑ **Open Business**
- ❑ **Functional coordination across business lines**
- ❑ **Team approach and redundant expertise**
- ❑ **Individual professional development**
- ❑ **Customer-oriented, rules driven programming methodology**



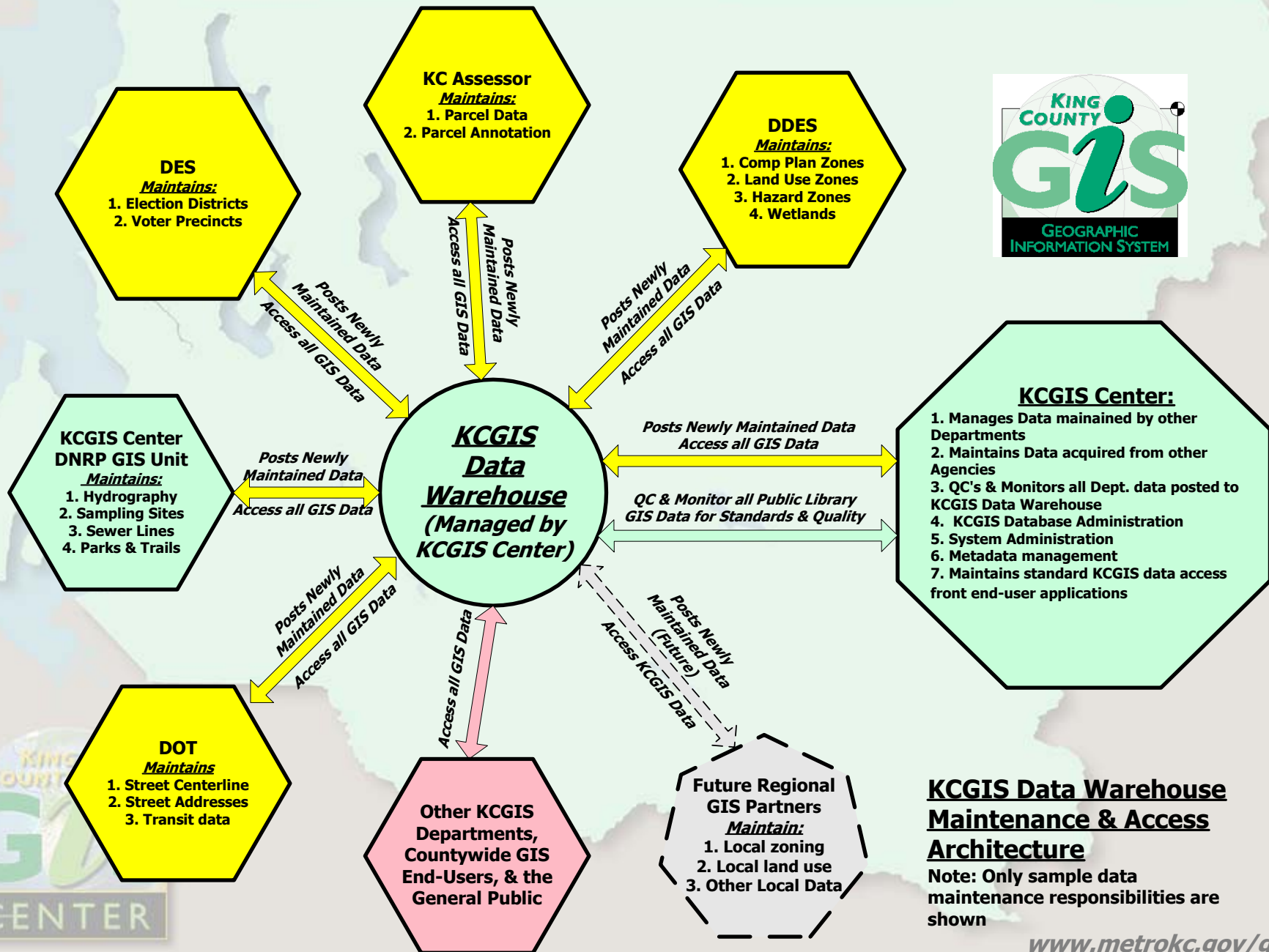
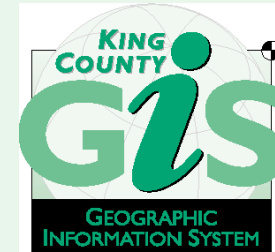
KCGIS Data Warehouse

- ❑ 5 'Data Steward' departments maintain core KCGIS data
- ❑ KCGIS Center manages nightly data integration routine
- ❑ KCGIS Center manages Data Warehouse to ensure KCWAN accessibility for 500+ users



KCGIS Data Warehouse

(www.metrokc.gov/gis/sdw)



KCGIS Data Warehouse Maintenance & Access Architecture

Note: Only sample data maintenance responsibilities are shown

www.metrokc.gov/gis

KCGIS Data Warehouse Operations

KCGIS Center

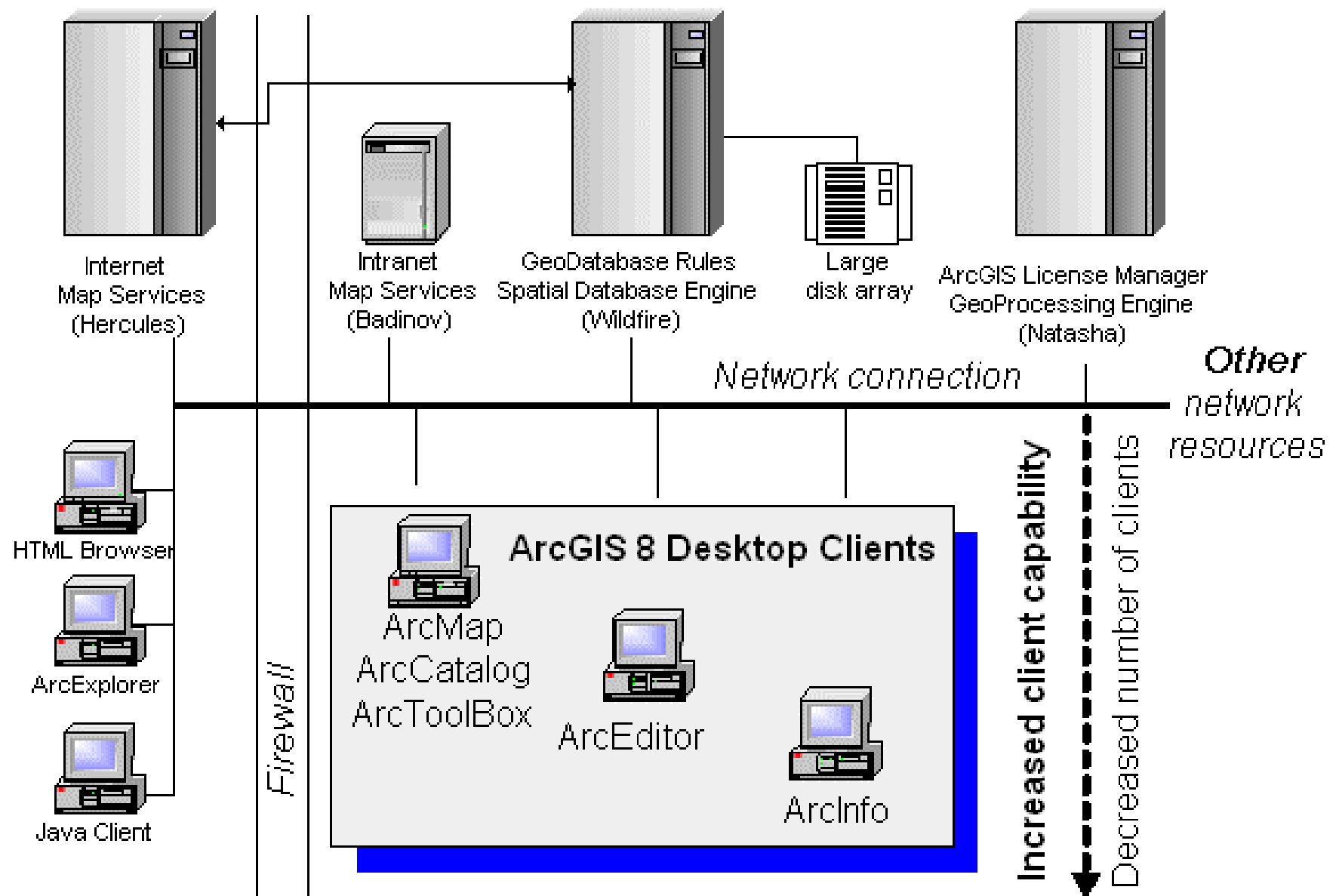
Architecture Development & Support:

- ❑ System configuration and planning
- ❑ System administration
- ❑ Data modelling
- ❑ Database administration
- ❑ Data security, backup, restore, disaster recovery



KCGIS Enterprise Architecture

Enterprise Geographic Information System Servers



KCGIS Data Warehouse Operations

KCGIS Center

Department Data Maintenance Tools:

- ❑ MaintRec
- ❑ KeyTool
- ❑ SiteTool
- ❑ InView
- ❑ EventlogReader
- ❑ DocTool



KCGIS Data Warehouse Operations

KCGIS Center Data Control & Integration Tools:

- Integrate
- RDBMS scripts
- Update
- LibTool
- DocGen
- ArcSDE scripts



KCGIS Data Warehouse Operations

KCGIS Center User Data Access Tools:

- AvLib
- KC Parcel Tools
- KC Property Report
- iMap
- Virtual Map Counter

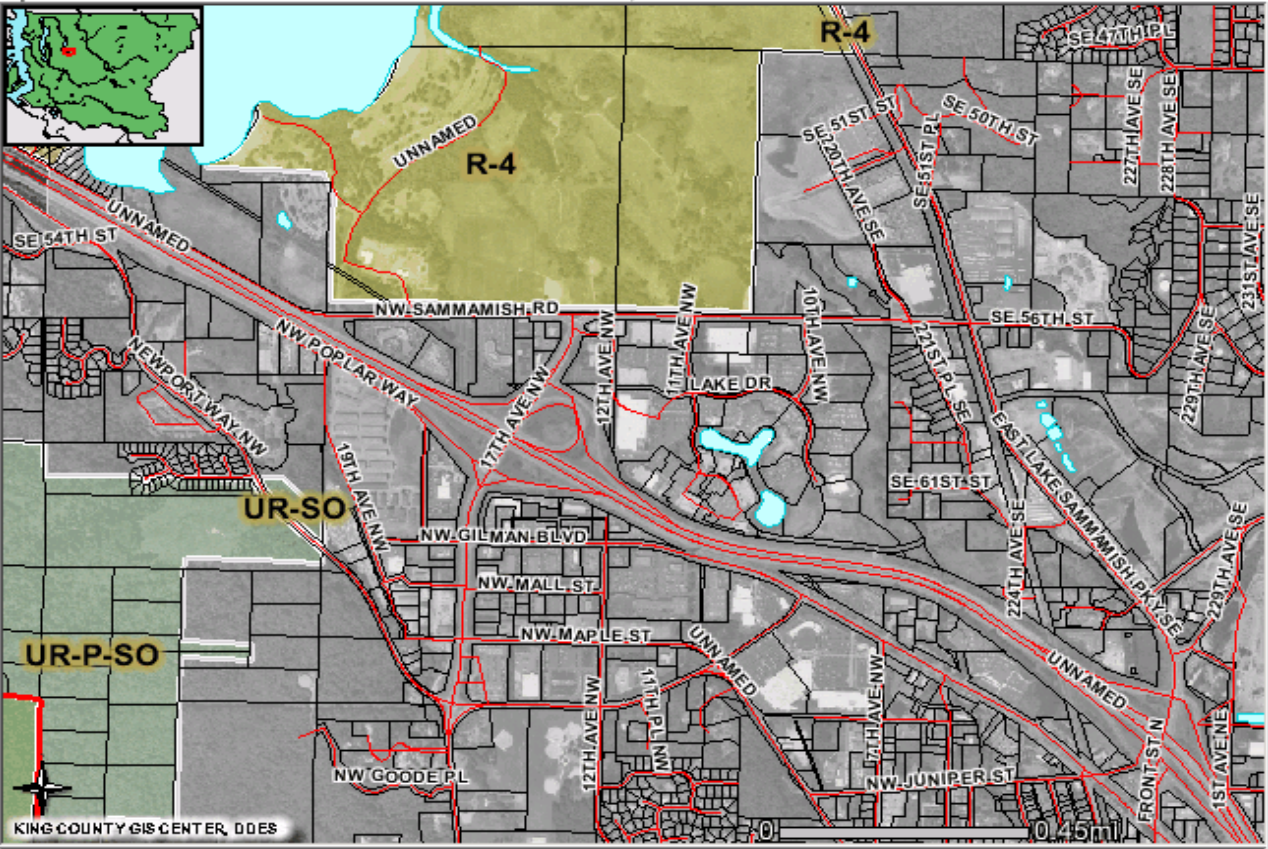


KCGIS Map Portal iMap

(www.metrokc.gov/gis/mapportal)

Map Portal - Microsoft Internet Explorer

King County, Washington **Map Portal**
Department of Information and Administrative Services, GIS Center



Layers

Visible	Active	Layer Name
<input checked="" type="checkbox"/>	<input type="radio"/>	Streets
<input checked="" type="checkbox"/>	<input type="radio"/>	Urban Growth Area Line
<input checked="" type="checkbox"/>	<input type="radio"/>	Lakes and Large Rivers
<input checked="" type="checkbox"/>	<input type="radio"/>	Muckleshoot Tribe
<input checked="" type="checkbox"/>	<input type="radio"/>	Parcel
<input checked="" type="checkbox"/>	<input type="radio"/>	Incorporated Area
<input checked="" type="checkbox"/>	<input type="radio"/>	Zoning Labels
<input type="checkbox"/>	<input type="radio"/>	Comprehensive Plan Land Use
<input checked="" type="checkbox"/>	<input checked="" type="radio"/>	Zoning
<input checked="" type="checkbox"/>	<input type="radio"/>	Aerial Photos

Refresh Map

Zoom In Help Metadata **Property Search** — Change Map Set —

Toggle Overview Map Internet

KCGIS Virtual Map Counter

(www.metrokc.gov/gis/vmc)

Address <http://www.metrokc.gov/gis/vmc/Environment.htm#Predicted ground acceleration> Go Links »

the Search: Web Shopping Dictionary Encyclopedia Stocks

King County Home News Services Comments Search

King County GIS Center

GIS Center Home
Map Portal
Client Services
Spatial Data Catalog
Data Warehouse

Virtual Map Counter King County MapsOnline

Environment (Physical)

The earth's surface and what's on it.
Includes land forms, hydrography, topography, geology, etc.

See also: [Natural Resource Management](#) for human impacts and mitigation maps; [Boundaries](#) for districts and jurisdictions.

Virtual Map Counter
How to Use the VMC
-plus: Featured Map
[Agency Index](#)
[Title Index](#)
[Topic Index](#)
[Boundaries](#)
[Environment](#)
[Nat. Resources](#)
[Planning](#)
[Public Safety](#)
[Recreation](#)
[Transportation](#)
[Utilities](#)
[Miscellaneous](#)

MapLinks
Site Features
[Data CDs](#)
[Events](#)
[KC Users Group](#)

Predicted ground acceleration for a magnitude 6.5 Seattle Fault Earthquake

[1107k PDF](#) Print Size: 34 x 44 inches

This is one in a series of maps produced by the King County GIS Center in cooperation with the King County Office of Emergency Management, USGS, Pierce County GIS, and other local groups. The map series depicts several aspects of the vulnerability of the Puget Sound transportation system to earthquakes.

King County Lakes


[734k PDF](#) Print Size: 17 x 11 inches

This color map includes cities as of December, 1999, lakes, lake names in



KCGIS Spatial Data Catalog

(www.metrokc.gov/gis/sdc)

**King County**

HomeNewsServicesCommentsSearch

King County GIS Center

GIS Center Home
Map Portal
Client Services
Spatial Data Catalog
Data Warehouse

Metadata:
Feature Data:
[By alphabet](#)
[By subject](#)
[By agency](#)
Image Data

Alphabetical Index

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z				

Subject Index
[admin](#)
[census](#)
[district](#)
[enviro](#)
[hydro](#)
[natres](#)
[other](#)
[plan](#)

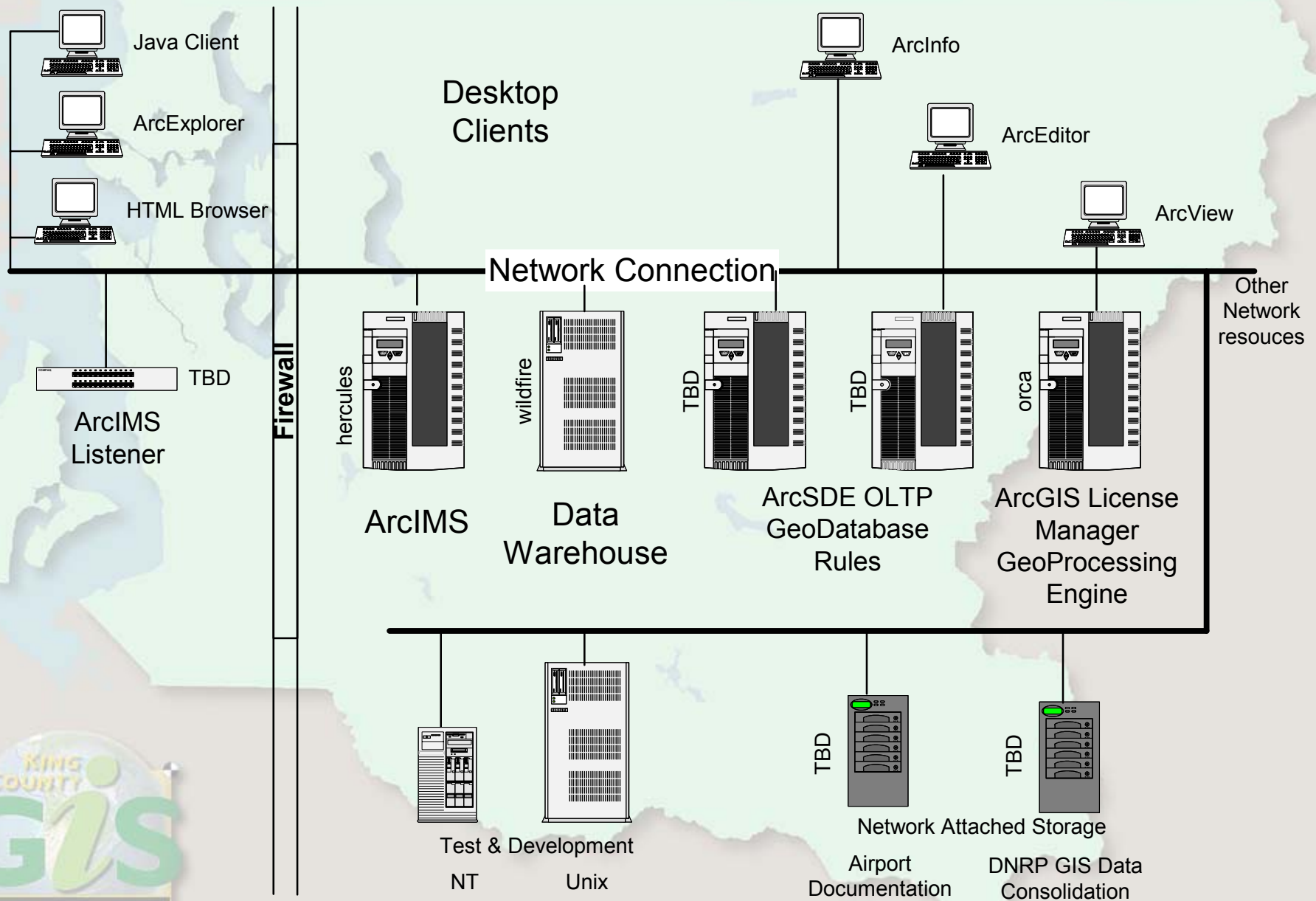
King County Tax Parcels

Description

File name: PARCEL
Subject category: property
Alias: King County Tax Parcels
Abstract: King County tax parcels and related property features
PARCEL is a standard KC GIS [coverage](#)
Purpose: This coverage contains tax parcel polygons and selected codes for King County in its entirety. The parcel identification number (PIN) from the county tax roll is included for relating other tables to PARCEL, but all other attributes and extensive annotation from the tiled source coverage (see RECDNET) are omitted. This coverage provides an interim source of countywide property polygons suitable for medium to large scale map displays and many kinds of analysis.
Status: in work
Updated: randomly
Coverage date:
Location: King County, Washington
Scale: 1:24000
FGDC documentation: [Available](#)
CD Distribution: [CD2](#), [CD4](#)
Additional comments: Minor Pin Codes: Right of Way Marked Not Open - 5999, Right of Way - 5555, Hydro/Unknown - 6666, Undivided Interest/Open Space - 7777, Condos - 8888



Future KCGIS Enterprise Architecture



KCGIS Center Operations

KCGIS Center Related Enterprise Services:

- ❑ License management
- ❑ Data acquisition & development
- ❑ Help desk
- ❑ Contracting
- ❑ Communications



KCGIS Data Warehouse Operations

Why the KCGIS Center Approach?

- ❑ Open business ensures consistent and effective operations**
- ❑ Ongoing focus to define and apply 'best practices' improves services**
- ❑ Promotes redundant knowledge and professional development**
- ❑ Supports cost-effective service delivery**



KCGIS Center DNRP GIS Unit Operations

Greg Stought, KCGIS Center - DNRP GIS Unit Manager



KCGIS Center DNRP GIS Unit Operations

KC Department of Natural Resources and Parks

- ❑ Wastewater Treatment Division**
- ❑ Water and Land Resources Division**
- ❑ Parks Division**
- ❑ Solid Waste Management Division**
- ❑ Lead responsibility for Countywide ESA response**



DNRP GIS Activity Prior to 2002

- WTD: 4 staff aligned with CIP work**
- WLRD: 4 staff in 2 separate units with different program responsibilities**
- Parks: 3 staff with effective management but remote location**
- Solid Waste: No GIS, but public-works oriented business needs**



KCGIS Center - DNRP GIS Unit

Organization:

- ❑ **10 GIS staff**
- ❑ **Shared management with KCGIS Center**
- ❑ **Shared support services with KCGIS Center**
- ❑ **Consistent training, standards, resources**
- ❑ **Operational flexibility**
- ❑ **Customer-oriented**



KCGIS Center - DNRP GIS Unit

Business Model:

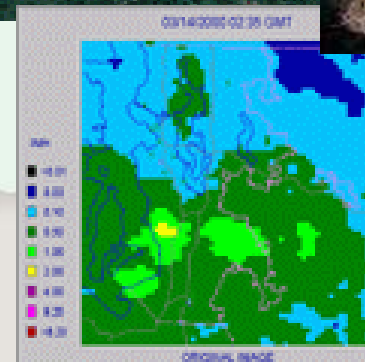
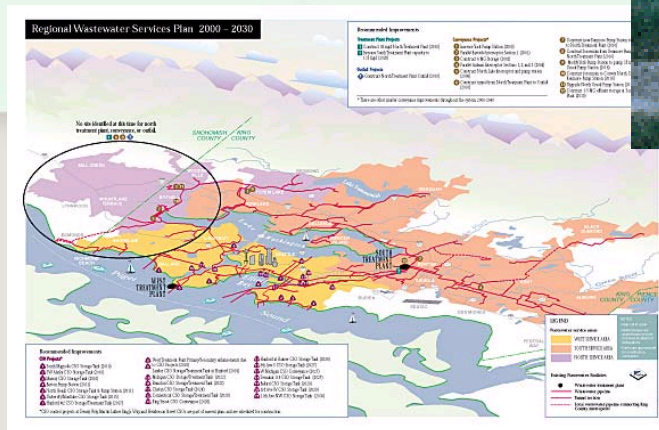
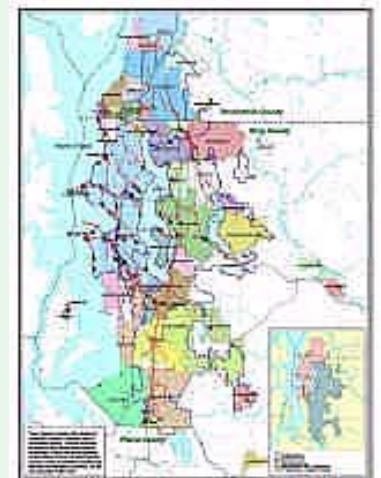
- ❑ Divisions maintain GIS liaison
- ❑ Staff work in matrixed relationship between division clients & DNRP GIS Unit manager
- ❑ DNRP GIS Unit Manager maintains standards, promotes 'best practices,' and balances workload
- ❑ DNRP GIS Unit Manager ensures customer satisfaction and manages client relationship



KCGIS Center - DNRP GIS Unit

Wastewater Treatment Division:

- ❑ Conveyance system improvements
- ❑ Brightwater siting & conveyance
- ❑ Regional infiltration & inflow control program
- ❑ Facilities inspection
- ❑ GIS data steward

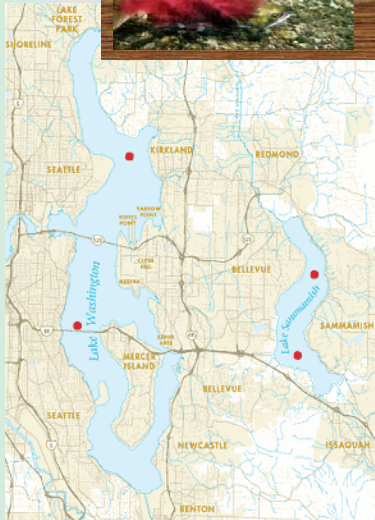


KCGIS Center - DNRP GIS Unit



Water & Land Resources Division:

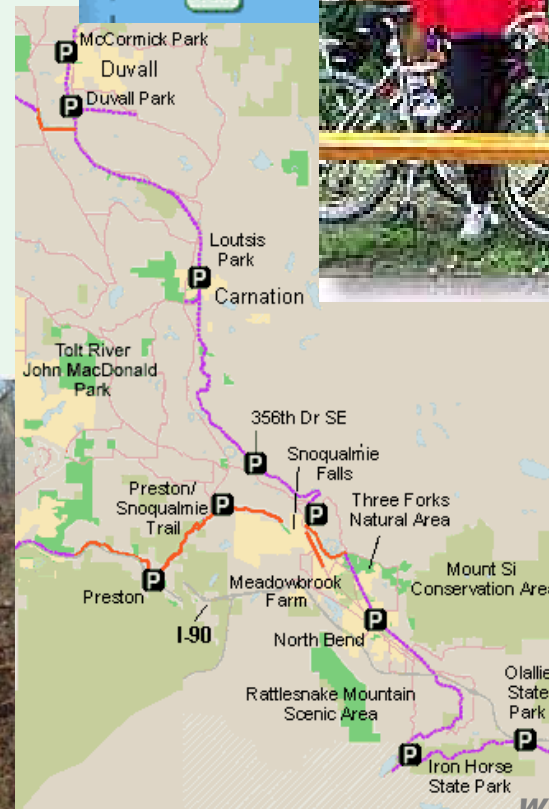
- ❑ Strategic initiatives - ESA
- ❑ Science, monitoring & data management
- ❑ Land & water stewardship
- ❑ Rural & resource programs
- ❑ Open space acquisition
- ❑ GIS data steward



KCGIS Center - DNRP GIS Unit

Parks Division:

- ❑ Facilities & site maintenance
- ❑ Recreational & event services
- ❑ Program development
- ❑ Land management
- ❑ GIS data steward



KCGIS Center - DNRP GIS Unit

Why the KCGIS Center Approach?

- ❑ Open business ensures consistent and effective operations**
- ❑ Ongoing focus to define and apply 'best practices' improves services**
- ❑ Promotes redundant knowledge and professional development**
- ❑ Supports cost-effective service delivery**



KCGIS Center Client Services

Dennis Higgins, KCGIS Center Client Services Manager



KCGIS Center - Client Services Unit

Organization:

- ❑ 9 GIS staff (5 FTE; 4 TLT)
- ❑ Shared management with KCGIS Center
- ❑ Shared support services with KCGIS Center
- ❑ Consistent training, standards, resources
- ❑ Operational flexibility
- ❑ Customer oriented



KCGIS Center - Client Services Unit

Business Model:

- ❑ Departments vary in their business need for GIS**
- ❑ Department & agency GIS resources vary:**
 - ❑ GIS support staff**
 - ❑ Trained GIS users**
 - ❑ Integration of GIS applications into agency business**
- ❑ KCGIS Center Client Services support agencies with backup & specialized services**
- ❑ Agencies receive KCGIS Center Client Services on a cost reimbursable basis**
- ❑ Outside agencies also utilize KCGIS Client Services**



KCGIS Center - Client Services Unit

Service Offerings:

□ GIS data sales



The screenshot shows a web browser window with the address http://www.metrokc.gov/gis/services/sales_cd1.htm. The page is titled "King County GIS Center" and "King County GIS Data Sales". It features a sidebar with navigation links such as "GIS Center Home", "Map Portal", "Client Services", "Spatial Data Catalog", "Data Warehouse", "GIS Projects & Consulting", "Data CDs", "Custom Cartography", "Web Mapping", "Contact Us", and "Site Features". The main content area highlights "CD #1 Standard Data Arc/Info Coverages", noting it is updated in June and December, and is in stock for \$75.00. It includes links to "View the Table of Contents", "See the Disclaimer", and "More information options". A "General Description" section explains that CD #1 contains a set of Arc 7.1.2 coverages arranged by theme, with HTML documentation accessible via a web browser.

Address: http://www.metrokc.gov/gis/services/sales_cd1.htm

Washington Search: Web Shopping Dictionary Encyclopedia

King County Home News Services Comments Search

King County GIS Center

GIS Center Home
Map Portal
Client Services
Spatial Data Catalog
Data Warehouse

GIS Projects & Consulting
Project Portfolio
Map Portfolio
Resources
Pricing
Data Sharing

Data CDs

Custom Cartography

Web Mapping

Contact Us

Site Features
Events
External GIS Links
KC Users Group
Knowledge Base
Regional Vision
Training

King County GIS Data Sales

CD #1 Standard Data Arc/Info Coverages

Updated and published in **June** and **December** of each year.

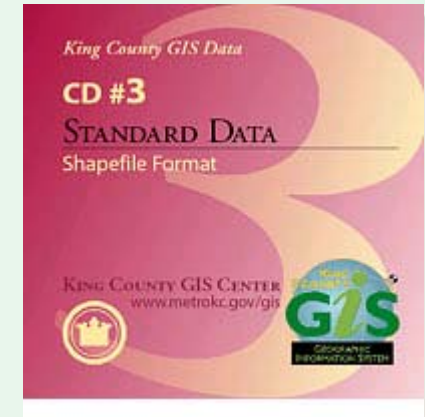
December 2001: In stock
Price: \$75.00

- [View the Table of Contents](#)
- [See the Disclaimer](#)
- [More information options](#)

General Description

CD #1 contains a set of Arc 7.1.2 coverages arranged by theme. Each top-level directory in the distribution is a workspace.

The contents of the CD are documented in a set of HTML pages, which can be accessed using your Web browser. Any datasets that have limited documentation will be updated in future releases of this CD product. The HTML pages are known to work with Netscape 4 and Internet Explorer 4. They should also work with any browser that supports frames.



KCGIS Center - Client Services Unit

Service Offerings:

□ GIS related training



Address http://www.metrokc.gov/gis/services/training_schedule.htm Go Links »

Facilities Search: Web Shopping Dictionary Encyclopedia

King County Home News Services Comments Search

King County GIS Center

GIS Center Home Map Portal Client Services Spatial Data Catalog Data Warehouse

GIS Training Client Services

KCGIS Teaching Schedule:

[Click here for Course Descriptions](#)

KCGIS Courses: King County Staff and staff of Puget Sound Area Government Agencies are eligible to take KCGIS Center Courses. Use the [Register](#) link for directions on registering with the KCGIS Center. (KCGIS)

ESRI Courses in Seattle: Enrollment for ESRI courses held in Seattle at the King County GIS Center is open to the public and handled by ESRI. Use the [Click here to enroll](#) link to connect to their site. (ESRI)

All courses are held between 8:30am - 5:00pm

Course dates after June 2002 are displayed in grey and subject to change.

Course	Dates	KCGIS	ESRI
Introduction to ArcGIS (1) (KCGIS) Location: King Street Center Students Enrolled: 5	February 12 - 13, 2002	Register	

GIS Projects & Consulting
[Project Portfolio](#)
[Map Portfolio](#)
[Resources](#)
[Pricing](#)
[Data Sharing](#)

Data CDs

Custom Cartography

Web Mapping

Contact Us

Site Features
[Events](#)
[External GIS Links](#)
[KC Users Group](#)
[Knowledge Base](#)
[Regional Vision](#)
[Training](#)

Site Navigation
[Site Index](#)
[Search KCGIS](#)
[Other KCGIS Sites](#)
[DDES](#)
[DNRP](#)

KCGIS Center - Client Services Unit

Service Offerings:

- ❑ Data development
- ❑ Thematic mapping
- ❑ Spatial analysis
- ❑ Publication cartography
- ❑ Application development
- ❑ Needs assessment & consulting
- ❑ GIS customization
- ❑ Staffing



KCGIS Center Client Services - Examples

Client/Project Examples

- ❑ KC EOC - GIS Integration
- ❑ KC Transportation Planning - Park & Ride Analysis Maps
- ❑ City of Tukwila GIS Needs Assessment & Action Plan
- ❑ City of Kirkland Parks Map



KCGIS Center Client Services - Benefits

Client Services Benefits

- ❑ Access to 30+ GIS staff with a wide variety of knowledge & experience
- ❑ On-call access to specialized GIS services, products, skills, & abilities
- ❑ Resource for peak workloads, staff absence, or vacancies
- ❑ Stability & reliability for department or agency business GIS needs



KCGIS Center Client Services

Why the KCGIS Center Approach?

- ❑ Open business ensures consistent and effective operations**
- ❑ Ongoing focus to define and apply 'best practices' improves services**
- ❑ Promotes redundant knowledge and professional development**
- ❑ Supports cost-effective service delivery**



KCGIS Center Accomplishments

- Received multiple national awards for GIS application and product development
- Implemented distributed GIS data maintenance by five County departments with centralized GIS data management & enterprise-wide access by users in 12 County departments
- Completed GIS implementation for KC EOC and coordinate 12 County GIS volunteer staff during EOC activations (Y2K, WTO Seattle event, Nisqually Quake, training exercises, etc.)
- Completed 20+ GIS client services agreements with local regional agencies *and* implemented cooperative data sharing/data maintenance agreement with Seattle GIS
- *Support* 30+ GIS professionals & technicians in other departments
- Manage innovative *cost reimbursable* client services business model: 30+ County Business Units and 20+ outside agencies supported in 2001!
- 200+ County GIS users receive formal training every year
- Centralized Countywide contracting for GIS related software for 500+/- GIS users (contract also used by outside local agencies)
- Provide access for 500+ active desktop GIS users to centralized GIS data and applications
- Support 20,000+ visits per day to KCGIS internet GIS Data Warehouse access tool (iMap)



Future GIS Issues within King County

- **Budget**
- **GIS service delivery within context of Countywide IT strategic plan**
- **Regional GIS services**
- **“Contingent FTE” vs. “Term Limited Temporary” staffing for GIS client services**



KCGIS Regional Vision

- ❑ **A community GIS resource, managed and deployed in an efficient and innovative manner**
- ❑ **Standards and infrastructure which support GIS reliability, quality, and performance**
- ❑ **Regional data warehouse, accessed through membership in KCGIS**
- ❑ **GIS products and services for the community which reduce cost and add value**
- ❑ **Increased, business-specific deployment of GIS for companies, governments, institutions, and individuals within the community**



Summary

KCGIS Center Web Site - www.metrokc.gov/gis

